

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A micro-system for receiving beads and obtaining a precise positioning of said beads at preset locations in said micro-system, comprising:

- a tank that has a cavity, ~~said cavity being~~ which is fitted with blocking elements ~~that allow the~~ having the form of columns, said blocking elements allowing to block beads ~~to be ordered and stacked~~ in the interstices between said blocking elements in an ordered way and in stacks, the said interstices constituting said preset locations,

- a cap hermetically sealing said tank,

- and import means and output means allowing a fluid to flow in said cavity.

Claim 2 (Currently Amended): The micro-system according to claim 1, wherein said blocking elements ~~consist of columns that~~ are integral with the bottom of said cavity or said cap.

Claim 3 (Previously Presented): The micro-system according to claim 1, wherein said beads all have the same diameter, and said blocking elements are evenly arranged in a two-dimensional network.

Claim 4 (Previously Presented): The micro-system according to claim 1, wherein said micro-system having to receive beads of different diameters, said blocking elements are distributed so as to obtain a positioning of said beads as a function of their diameters.

Claim 5 (Previously Presented): The micro-system according to claim 4, wherein said blocking elements are distributed so as to constitute wells intended to receive beads of a first preset diameter and spaces between the wells intended to receive beads of a second preset diameter.

Claim 6 (Previously Presented): The micro-system according to claim 3, wherein said two-dimensional network is a hexagonal mesh.

Claim 7 (Previously Presented): The micro-system according to claim 3, wherein said two-dimensional network is a square mesh.

Claim 8 (Previously Presented): The micro-system according to claim 1, wherein said blocking elements have a transverse cross-section of a shape selected from among discs, ellipses and polygons.

Claim 9 (Previously Presented): The micro-system according to claim 8, wherein said blocking elements have a transverse cross-section in the shape of a hexagon.

Claim 10 (Previously Presented): The micro-system according to claim 1, wherein said blocking elements are of a height that allows at least two beads to be stacked.

Claim 11 (Previously Presented): A micro-reactor comprising the micro-system according to claim 1 and beads of one and the same diameter and with the same function, fitted between said blocking elements.

Claim 12 (Previously Presented): A micro-reactor comprising the micro-system according to claim 1 and beads, of the same diameter but functionalised differently, fitted between said blocking elements.

Claim 13 (Previously Presented): A micro-reactor comprising the micro-system according to claim 1 and beads, with the same function but of different diameters, fitted between said blocking elements.

Claim 14 (Previously Presented): A micro-reactor comprising the micro-system according to claim 1 and beads, of different diameters and functions, fitted between said blocking elements.

Claim 15 (Previously Presented): A process for making the micro-system according to claim 1, comprising the following stages:

- forming, by micro-machining a substrate, the tank that has said cavity fitted with said blocking elements,
- supplying a cap intended to seal said cavity of said tank hermetically, and
- forming said fluid import means and said output means by micro-machining said tank and/or said cap.

Claim 16 (Previously Presented): The process according to claim 15, wherein said micro-machining is carried out by a process of dry or wet etching a material.

Claim 17 (Previously Presented): The process according to claim 15, wherein said micro-machining is carried out by impression moulding process.

Claim 18 (Previously Presented): The process according to claim 15, wherein said micro-machining is carried out by photolithography process.

Claim 19 (Previously Presented): A process for obtaining the micro-reactor according to claim 11, comprising filling functionalised beads in suspension in a liquid by sedimentation.

Claim 20 (Previously Presented): A process for obtaining a multi-functional micro-reactor, comprising filling the micro-system according to claim 3 with functionalised beads of one and the same diameter but with different functions, comprising:

- for beads functionalised according to a first function, the following stages:
 - a) placing a cover on said tank leaving accessible the part in which it is wished to place the beads of a first function,
 - b) filling by sedimentation, and
 - c) withdrawing said cover,
- for beads functionalised according to another function, the repetition, as many times as there are functions remaining, of stages a) to c) with beads of said other function, sealing said tank with said cap.

Claim 21 (Previously Presented): A process for obtaining a multi-functional micro-reactor by filling the micro-system, according to claim 4, with beads the function of which is related to the diameter of said beads, comprising at least two filling stages, the order of said filling stages corresponding to the decreasing order of the diameter of said beads.

Claim 22 (Previously Presented): A process for implementing a biochemical or biological reaction, comprising flowing a fluid stream in the micro-reactor according to claim 11, so that at least one constituent of said fluid stream reacts with pre-functionalised beads able to produce a chemical, electrochemical, biological or biochemical reaction, and at micro-reactor output(s) a fluid stream is collected that includes product(s) of said reaction.

Claim 23 (Previously Presented): The process according to claim 22, wherein said reaction is a reaction of the substrate enzyme type, said pre-functionalised beads able to produce a biological or biochemical reaction are enzymes, said constituent of the fluid stream is a substrate of the enzyme, and said products of the reaction are products arising from reaction of said enzyme with said substrate.

Claim 24 (Previously Presented): The process according to claim 22, wherein said reaction is an enzymatic digestion reaction by a protease, said pre-functionalised beads able to produce a biological or biochemical reaction are proteases and said constituents of the fluid stream are peptides or proteins and said products of the reaction are peptidic segments.

Claim 25 (Previously Presented): The process according to claim 24, wherein the enzyme is trypsin.